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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/068,592	05/14/1998	KOICHI MORITA	XIP5934USO	2471

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LARSON & TAYLOR, PLC  
1199 NORTH FAIRFAX STREET  
SUITE 900  
ALEXANDRIA, VA 22314

EXAMINER

DOVE, TRACY MAE

ART UNIT

PAPER NUMBER

1745

33

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-3-3

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/068,592	MORITA ET AL.
	Examiner	Art Unit
	Tracy Dove	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 23 June 2003.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1,3-5,7,9-12,23,27,38,39,41-43,45 and 47 is/are pending in the application.
- 4a) Of the above claim(s) 23,27 and 41-43 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3-5,7,9-12,38,39,45 and 47 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

This Office Action is in response to the communication filed on 6/23/03. Applicant's arguments have been considered, but are not persuasive. Claims 1, 3-5, 7, 9-12, 23, 27, 38, 39, 41-43, 45 and 47 are pending. Claims 23, 27 and 41-43 are withdrawn from consideration as being directed toward a nonelected invention. Claims 1, 3-5, 7, 9-12, 38, 39, 45 and 47 are rejected in view of the prior art. This Action is made FINAL, as necessitated by amendment.

### ***Election/Restrictions***

This application contains claims 23, 27 and 41-43 drawn to an invention nonelected without traverse in Paper No. 29. A complete reply to the final rejection must include cancellation of nonelected claims.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-5, 7, 9-12, 38, 39, 45 and 47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 47 recite "a starting material of either processed tar from coal, processed pitch from coal, unprocessed tar from petroleum, or unprocessed pitch from petroleum, the starting material having 3% or less of primary QI", which is considered new matter. The specification states "tar or pitch modified by removing at least

part of primary QI" (page 8, lines 7-8) and "tar or pitch having 3% or less ... of primary QI [is] produced by removing at least part of primary QI which exists in [the] raw material" (page 18, lines 2-5). Thus it appears the specification does not provide support for an unprocessed tar from petroleum or an unprocessed pitch from petroleum having 3% or less of primary QI.

### *Claims Analysis*

A calcined two-layer carbon material with "no grinding face" (claims 1 and 47) is interpreted as a calcined two-layer carbon material that has not be subjected to a grinding process (page 31, lines 11-18 of specification).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7, 9-12, 38, 39, 45 and 47 are rejected under 35 U.S.C. 102(b)/103(a) as being anticipated by, and alternatively unpatentable over, Miyabayashi et al., US 5,401,598.

Miyabayashi teaches an electrode for a secondary battery including a carbonaceous material. The carbonaceous material has a multiphasic structure comprising a nucleus and a

surface layer (coat-forming carbon) around the nucleus (core carbon). See abstract. Figure 1 shows a nearly spherical carbonaceous material (no grinding face). The carbonaceous material has a specific surface area measured by the BET method of 1-100 m<sup>2</sup>/g, most preferably 2-8 m<sup>2</sup>/g (col. 6, lines 30-35). As to the weight ratio of the nucleus portion and the surface layer portion, that of the nucleus is preferably 20-99% by weight, more preferably 50-85% by weight, and that of the surface layer is preferably 1-80% by weight, most preferably 15-40% by weight (col. 9, lines 45-55 and col. 10, lines 18-24). The carbon material forming the nucleus may be graphite (col. 8, lin 7-13). The carbonaceous material used in Miyabayashi has at least two peaks of diffraction lines corresponding to the multi-phasic structure, that is, as the peak of the diffraction line corresponding to the crystalline structure. The surface layer portion has a spacing  $d_{002}$  of a (002) plane of 3.45 Å or more and a crystallite size in the c-axis direction (Lc) of less than 150 Å. The peak of diffraction line corresponding to the structure of the nucleus portion has a  $d_{002}$  of less than 3.45 Å and an Lc of 150 Å or more (col. 4, lin 8-31). The carbonaceous material has a true density of 1.80 g/cm or more, and may have any desired shape. The volume average particle size is preferably 200 µm or less, most preferably 2-20 µm (col. 6, lin 18-29 and abstract). The thermal decomposition (calcination) temperature for forming a surface layer is generally lower than the temperature for synthesizing the carbonaceous material which becomes a nucleus, preferably 300-2000°C (col. 9, lin 17-20).

The carbonaceous material of Miyabayashi can be formed by heating the material at a temperature of 300-3000°C (decomposing), under an inert gas stream or under vacuum, to carbonize and graphitize the carbon material. Example 1 (col. 14, lin 48-64) teaches thermal decomposition (calcination) is performed to form the surface layer carbonaceous material on the

particle of the carbonaceous material (nucleus). The carbonaceous material is heated up to 900°C at a temperature elevation rate of 10°C/min.

Regarding claims 12 and 45, Miyabayashi teaches the granular carbon material has a volume average particle size that is 200  $\mu\text{m}$  or less, most preferably 2 to 20  $\mu\text{m}$ . Since the claimed range of particles having a diameter of 1  $\mu\text{m}$  or less is 10% or less (includes zero), this limitation is disclosed by Miyabayashi.

Regarding the “starting material” of claims 1 and 47, Miyabayashi teaches various pitch materials may be used as surface layer carbon material (col. 7, lines 57-66 and col. 8, lines 56-57). The pitch may be dissolved in an organic solvent, and this solution is mixed with the core carbon material. The mixture is heated to remove the solvent, whereby the pitch is coated on the surface of the core carbon material. The coated core carbon material is heated for carbonization and decomposed by heating to form the carbonaceous material of the surface layer (col. 8, lines 37-45).

Thus the claims are anticipated.

The claims are alternatively unpatentable. Miyabayashi does not explicitly teach washing the carbonaceous material multiphasic structure (instant claims 38, 39 and 47). However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because irrespective of how the layered carbon materials are made, the products are the same. Thus, whether the layered carbon materials are calcined and then washed, washed before they are calcined, or any other method of manufacturing the layered carbon material is used, the layered carbon materials, as an end result, are the same. Furthermore, the

courts have held that when similar products are produced, the product-by-process limitations are obvious. *In re Brown* 173 USPQ 685, *In re Fessman* 180 USPQ 324.

Regarding the primary QI and toluene insoluble matter of the starting material, these claimed properties are not present in the calcined two-layer carbon material product. Thus, the properties are product-by-process limitation, which, in the absence of unexpected results, are obvious. Note Applicant admits at the bottom of page 3 of the communication filed 6/23/03 that tar or pitch is changed by processing, washing and calcination, thus, one cannot specify primary QI and a toluene insoluble matter with respect to the produced two-layer carbon material.

#### ***Response to Arguments***

Applicant's arguments filed 6/23/03 have been fully considered but they are not persuasive.

#### **35 U.S.C. 112, 2<sup>nd</sup> paragraph**

All 35 U.S.C., 2<sup>nd</sup> paragraph rejections have been withdrawn.

#### **35 U.S.C. 102(b)/103(a)**

Applicant argues Miyabayashi fails to teach or suggest the now claimed covering ratio "c" or toluene insolubility matter. Note since the covering ratio "c" is "before calcination", the limitation is interpreted as a product-by-process limitation. Also, the toluene insolubility matter percentage claimed is not present in the final product, thus, the limitation is a product-by-process limitation. Applicant does not show that the end product of the instant invention is materially different from the end product of the prior art. The courts have ruled that product-by-process limitations, in the absence of unexpected results, are obvious.

Furthermore, Miyabayashi teaches the surface layer (coating layer) is preferably 1-80 wt% of the multi-phasic carbon material (col. 9, lines 45-55). Applicant points out Example 3 and asserts that if the Miyabayashi coated layer were to be washed with a toluene solution, the 100% toluene soluble pitch-coated layer would be removed from the surface of the carbonaceous particles. Examiner disagrees with this analysis. Specifically, if the pitch is 100% dissolved in the toluene, then how does the surface layer of Example 3 form? Only toluene insoluble components of the pitch would be formed on the core carbon particle when it is dipped in the pitch/toluene solution. Note Example 4 that teaches a carbonaceous material was placed in a solvent in which a pitch was dissolved in a toluene solvent to coat the surface of the carbon particles with the pitch. Examiner requests Applicant explain how the pitch of the prior art is dissolved in toluene (as asserted by Applicant) while the pitch of the instant invention is not. Both Example 3 and claim 1 encompass a surface coating of pitch that has been dissolved in toluene.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

July 28, 2003



Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700